

### ABSTRACT OF THE DISCLOSURE

The present invention provides an improved method and apparatus for detecting dental caries (including residual caries) during treatment thereof. A dental handpiece in accordance with the present invention includes both an integral drill head (or other apparatus for excavating caries) and an integral light source operable to cause tooth luminescence. The light source is configured whereby tooth luminescence is caused when the dental handpiece is placed in operable position to treat the tooth with the drill head. During treatment, an observer can differentiate carious tooth substance from non-carious tooth substance due to the luminescent characteristics of each. Specifically, it has been found that when illuminated with a blue-violet light, the carious region of a tooth will appear as a red-orange central region surrounded by an intensely luminescent region of green color. The aforementioned intensely luminescent region is positioned intermediate the red-orange central region and a dark outer ring. According to the method of the present invention, the red-orange centered region is identified as the bacterially invaded zone of the carious lesion and is removed.